



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/553,171

10/17/2005

Munetsugu Ueyama

017700-0180

1079

23392 7590 01/06/2010

FOLEY & LARDNER
555 South Flower Street
SUITE 3500
LOS ANGELES, CA 90071-2411

EXAMINER

PATEL, ISHWARBHAI B

ART UNIT

PAPER NUMBER

2841

MAIL DATE

DELIVERY MODE

01/06/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/553,171	Applicant(s) UEYAMA ET AL.	
	Examiner Ishwarbhai B. Patel	Art Unit 2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-14 is/are pending in the application.
- 4a) Of the above claim(s) 9-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 October 2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 27, 2009 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otto (US Patent No. 6,188,921) in view of Christopherson (US Patent No. 6,339,047) and Higashiyama Kazuhisa (JP408106823).

Regarding claim 1, Otto discloses a superconducting wire, comprising an oxide superconductor and a cladding metal for cladding said oxide superconductor (oxide filament in metal sheath, column 5, line 1-10), wherein the material of said cladding metal is silver and silver alloy (column 6, line 5-14, column 5, line). Otto does not

Art Unit: 2841

explicitly disclose a material of said cladding metal having a breaking strain of at least 30% in a stress-strain test and the cladding material having an impurity concentration of 10 ppm to 500 ppm.

However, Otto recites controlling stress / strain in the cladding material to avoid defect in the superconductor. (column 6, line 14-30). That means the cladding material should be selected such that it will have desire mechanical strength to have avoid the damage to the superconducting phase. Otto further recite the fracture strain greater than 1% (column 18, line 5-10) and further more disclose the variation of tensile strength and the fracture stain with percentage of impurity (Ga) in the cladding material (column 14, line 55-68). This implies that the fracture strain can be controlled by varying the impurity in the silver.

Christopherson discloses an alloy matrix for superconductor and recites that high purity silver usually contains some impurity, and recites even further reducing the impurity to improve quality of the matrix to avoid damage in the subsequent operations. This implies that the silver (or silver alloy) should be as pure as possible.

Higashiyama Kazuhisa discloses a superconductive with silver pipe having 99.99 % purity (which meets the limitation of impurity of 10 ppm to 500ppm) to have a superconducting cable with better performance.

Further, the superconductor wire of Otto, Christopherson and Higashiyama are operational wire with the stress and strain controlled to have desired performance.

A person of ordinary skill in the art at the time of applicant's invention would have been motivated to have the silver cladding with the desired amount of impurity along

Art Unit: 2841

with alloying material to control stress / strain of the cladding material to have desired performance.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to provide the superconducting wire of Otto with said cladding metal having a breaking strain of at least 30% in a stress-strain test and the cladding material having an impurity concentration of 10 ppm to 500 ppm, as taught by Christopherson and Higashiyama, in order to control stress / strain of the cladding to have desired performance.

Further, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involve only routine skill in the art. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Regarding claims 2-5, adjusting the desired value of breaking strain (claim 2-3) or the proportion of oxide superconductor (claim 4) and maximum stress (claim 5), would have been obvious to a person of ordinary skill in the art at the time of applicant's invention, control stress / strain of the cladding to avoid damage to the superconducting material as well as to have the desired current carrying capacity.

Regarding claim 6, Otto further discloses the material of said cladding metal contains silver and/or silver alloy (column 6, line 5-14).

Regarding claim 7, Otto further discloses a material of said oxide superconductor contains a bismuth-based oxide superconductor (column 6, line 31-45).

Response to Arguments

4. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) / new explanation of the rejection.

Further, applicant submitted "Declaration Under 37 CFR 1.132" explaining sample 1 and sample 2 with silver having 99.97 % Ag, which was annealed for 10 hours at 30 degree C and 300 degree C, and stated that results of measurement are shown in figure 1 to 3 attached as Exhibit 2. However, no such Exhibit is found on the record.

Furthermore, applicant, starting on page 2 of the response, argues that the primary reference to Otto, fail to teach or suggest the cladding metal having a breaking strain of at least 30% in a stress - strain and silver having an impurity concentration of 10 ppm to 500 ppm, and states that the secondary references to Christopherson teaches that high-purity silver usually contains some impurity but fails to disclose the claimed numerical range of impurity concentration or its effect and fails to teach the cladding metal having a breaking strain of at least 30 % in a stress-strain test and the prior art to Kazuhisa teaches a silver pipe of 99.99 % purity filled up with powder but fails to teach the cladding material having a breaking strain of at least 30 % in stress-strain test.

This is not found to be persuasive.

The primary reference to Otto teaches controlling the stress / strain of cladding material to avoid damage to the superconductive material. The second art to Christopherson disclose that though pure silver or silver alloy are used for cladding material, there exist some impurity and teaches to reduce the same. The secondary art to Kazuhisa discloses the cladding material with 99.99 % purity (which meets the requirement of impurity below 500 ppm). A person of ordinary skill in the art will be motivated to reduce the impurity to have desired mechanical property of cladding material in order to avoid damage to superconductor material. Therefore, the combination meets the limitation.

Further, it has been held that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); In re Merck & Co., Inc., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Otto (US Patent Application Publication # 2003/0024730) discloses annealing at 200° to 450 ° C to control the strain energy (page 1, paragraph 0006).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ishwarbhai B. Patel whose telephone number is (571) 272 1933. The examiner can normally be reached on M-F (8:30 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jinhee Lee can be reached on (571) 272 1977. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ibp
January 3, 2010

/Ishwarbhai B Patel/
Primary Examiner, Art Unit 2841